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Reprinted from THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, February, 1889.

[SECOND EDITION.]

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EXAMINATION OF THE THROAT AND NOSE OF TWO THOUSAND CHILDREN TO DETER- MINE THE FREQUENCY OF CERTAIN ABNORMAL CONDITIONS.

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(Extracted from the American Journal of the Medical Sciences for February, 1889.)

In February, 1888, Dr. Franklin Hooper, of Boston, read a paper before the Laryngological Section of the New York Academy of Medicine on adenoid growths in the vault of the pharynx. In the discussion which followed a great diversity of opinion prevailed as to the frequency of this disease in the children of this city and vicinity; some thinking that as many as two or three per cent. were sufferers; while others, that, according to their experience, it was less than one per cent. One speaker believed it to be a rare disease.

To settle this point, which is certainly one of importance, I undertook, associated with Dr. Andrew H. Smith, the examination of these children, hoping that some definite opinion might be arrived at. While making the examination, we took the opportunity of studying the condition of the other parts of interest in this region. Of the 2000 children, 955 were taken from the New York Juvenile Asylum, 176th Street and Tenth Avenue, by the kind permission of Mr. A. G. Agnew and Mr. E. M. Carpenter, and Dr. Baruch, the attending physician; 645 from Grammar School No. 49, by permission of Mr. A. G. Agnew, and Mr. Pettigrew, the principal; 500

from the Half Orphan Asylum in East 10th Street, and the remaining number from various sources.

In the entire number the following abnormal conditions were found :

Adenoid growths,	60
Enlarged tonsils,	270
Deviated septa,	330
Spurs on septa,	150
Hypertrophy of inferior turbinated bodies,	260
Hypertrophy of middle turbinated bodies,	161

This shows that 1231 were suffering from some anatomical abnormality, and usually with its accompanying symptoms of respiratory obstruction and catarrh. I will only give a short sketch of the observations made in each condition.

ADENOID GROWTHS, OR POST-NASAL DISEASE.

It has been shown that 60 suffered from this disease ; of the entire number, 1292 were boys ; 49 of whom had adenoid growths ; 708 were girls, 11 having the disease, scarcely more than half in proportion to the number occurring in the boys. The ages varied from four to sixteen ; few cases occurring under six years or over fourteen ; the largest number being in children between eight and ten years, the frequency increasing toward puberty and decreasing after it. Condition of life and surroundings seem to have no effect on the occurrence of this disease. The children from Grammar School No. 49 and others, taken from the better classes, suffered equally with those in the asylums. Two classes of cases were observed sufficiently different in appearance and symptoms to allow of separate description.

In the first class the growths were irregular red masses, varying in size from that of a pea to that of a small cherry, and having a tense, glistening appearance. They occupied chiefly

the vault of the pharynx, and resembled the glandular tissue of this region much hypertrophied. Thirty-five cases of this kind were observed. The growths were numerous, and hung down from the vault so as to fill the post-nasal space. They secreted a copious, thick yellow mucus, which hung from and around the growths, and in some cases large desiccated scabs covered the masses. The vocal sounds were thick and dead in character, and the nasal respiration much impaired at times, while at other times it seemed comparatively free. None had the high palatine arch and pigeon breast described by some observers. There was no case of decided deafness, although 10 had slight impairment of hearing. All these children would be classed as of the scrofulous type, and, I think, this disease is largely due to diphtheria, scarlet fever, and measles, occurring in such children, whose mucous membrane and glands, if once inflamed, show very little recuperative power. Throat complications are more severe in this class when suffering from diphtheria and scarlet fever; in place of returning to its natural condition, the mucous membrane remains swollen and inflamed, and after a short time that which was only the result of acute inflammation becomes organized tissue. This form, though differing anatomically from the other class of post-nasal growths, requires the same treatment.

Second Class.—The growths were small, pale pink or gray in color, and, in some cases, presented a fringed appearance; while in others they were flat and round, and occurred singly or in clusters. 25 of this class were observed: 19 of which had only a moderate amount of growth, confined chiefly to the vault and around the Eustachian Tube. The remaining 6 were marked cases of the worst type of this disease. The growths were numerous, sessile, and long, and completely

packed the post-nasal space, and extended in a chain-like formation down the pharynx ; and seemed continuous with the tonsils. The tonsils were hypertrophied in all the six cases. In 1 case not quite so severe as the others, the growths occupied the posterior margin of the septum and the margins of the posterior nares. All of these children had complete nasal obstruction, the "dead" voice, high palatine arch, small nostrils, and pigeon breast, and also the restless, irritable condition prescribed by all writers on this subject. The 16 who were affected only in a moderate degree presented only moderate symptoms, and only 2 had impairment of hearing. All of the 6 severe cases had impaired hearing. One child could hear only the loudest sounds. The mucus secreted in these cases was white and frothy in character, and very copious. In this case the disease, I think, is often hereditary, and occurs in several members of the same family.

The examination of the post-nasal space was made chiefly with the mirror, and in the public institutions afforded a remarkable proof of the effect of fear and discipline on the reflexes. The children felt that they were carrying out a command, and although afraid, their discipline was so good that they made no objection or efforts of resistance. The condition seemed to paralyze their faucial muscles, and allow the soft palate to hang away from the posterior pharyngeal space. This is in marked contrast to the condition in which the physician finds the child who comes to him in private practice, who, if adverse to being examined, has little difficulty in showing that it is master of the situation.

In some cases the formation was such as to leave but little space between the soft palate and the posterior wall of the pharynx. In these cases, by causing the patient to say "ah,"

the soft palate was drawn upward and backward, and if the mirror was in readiness, when the palate relaxed and fell forward, a little anterior to its normal position, it allowed of a good momentary view. By repeating this once or twice a very satisfactory examination can be made. In twenty of the children the finger had to be used for diagnosis.

A good light is of the greatest importance, and I obtained the best views with a magnesium lamp, loaned me by Messrs. White & Son, of this city. But this could not be used for any length of time, as the light was so bright, that after examining eight or ten cases, I would be unable to see any thing distinctly for at least an hour. For short examinations, however, where a bright light is of importance, nothing equals it.

HYPERTROPHY OF THE ANTERIOR PART OF THE INFERIOR TURBINATED BODIES.

This was confined chiefly to the mucous membrane. Only the most marked cases were noted; of these there were 260. In 102 the hypertrophy was bilateral and pressed the septum on all sides; in 140 it was unilateral, occurring chiefly on the left side, very large, often occluding the nostril and pressing the septum to the opposite side; in 18 cases the hypertrophy of the inferior and middle turbinated bones was so great as to occlude completely the nares, and on anterior rhinoscopic examination gave the appearance of two red masses filling the nasal cavities. If a diagnosis should be made relying only on the symptoms, without a rhinoscopic examination, they would be all pronounced cases of adenoid disease of the worst type. This shows how necessary it is to make a thorough examination in every case before introducing the post-nasal forceps. There are some surgeons who think mouth-

breathing and dead voice sufficient to warrant them in operating without any further examination. As a result of this, I have several times seen the post-nasal space clear of all its glandular tissue and not a little of the mucous membrane without any relief to the patient.

This condition of hypertrophy of the inferior turbinated bodies occurs with equal frequency in males and females, but is rare in very young children. Colored children and Italians are remarkably free from it.

HYPERTROPHY OF MIDDLE TURBINATED BODIES.

161 had this condition ; in 51 it was bilateral, and 110 unilateral. In 2 cases the mucous membrane and bone were so much enlarged that the tumor touched the floor of the naris. The bilateral cases presented chiefly an hypertrophy of the mucous membrane, but in the unilateral there was mostly a bony hypertrophy, and in 75 of these cases the cartilaginous septum was deviated to the opposite side ; its concavity corresponding to the hypertrophied middle turbinated body. No child presented any evidence of reflex symptoms, and those cases of hay fever, reflex headache, and cough, which are relieved and sometimes cured by cauterization, or by removing part of the middle turbinated body, must be due to some condition of later development, as certainly, if hypertrophy or pressure alone could cause these reflex diseases, we ought to have had them with great frequency in these cases.

DEVIATED SEPTUM.

330 examples occurred ; 270 presenting deviations of the cartilaginous, 50 of the bony septum, and 10 of both bone and cartilage. Of the cartilaginous deviations, 148 were to the right, and 122 to the left. Of the bony, 35 to the right and 15

to the left. The bone and cartilage deviations were S-shaped. The cases of deviations were 50 per cent. more numerous in boys than girls ; 25 per cent. gave a history of injury, and the same number were due to hypertrophy of the middle turbinated bone. Only ten deviations of the cartilage were observed in children under the age of seven, and they gave history of injury. In deviation of the bone, the children were all over eight. In 30 per cent. the obstruction was sufficient to impede respiration ; and in all cases it increased the nasal discharge.

From these observations it would seem that deviation of the cartilage is rare under seven, and that when occurring, it is due to traumatic causes. It is well established that deviations of the septum occur in about 75 per cent. of adults examined, and this, of course, must be due to some cause which does not affect the very young. I think a large percentage is due to one of four causes :

First. Traumatism.

Second. Hypertrophy of middle turbinated body, or some other source of unilateral pressure.

Third. Hyperplasia from long-continued irritation.

Fourth. Difference in period of development of the bones of the face and septum.

SPUR ON SEPTUM.

Only the part of the septum visible through the anterior nares is considered under this heading. 150 were observed ; 100 on the right side, and 50 on the left. The largest number were situated at the anterior inferior angle of the cartilage, close to the floor of the naris, and varied from one quarter of an inch to an inch in length ; were shelf-like in appearance, and concave on the under surface. 25 of the other children had a long ridge starting from the anterior inferior angle of the

septum and running upward and backward from one to one and one-half inches. They were very large, often occluded the nasal passage of that side, and caused frequent attacks of epistaxis. I think spurs on the septum are often caused by slight injury to the nose, and, although small at first, grow rapidly.

ENLARGED TONSILS.

Only those presenting very considerable enlargement were noted. Of these, there were 270; 183 being of both tonsils, and 87 of one only. 160 cases were in males, and 110 in females. 7 cases were of extreme enlargement, preventing a view of the posterior wall of the pharynx and causing difficulty in introducing the finger into the post-nasal space. 6 cases had great impairment of hearing, and all breathed with the mouth open, to a greater or less extent, and had other symptoms of obstruction.

RESUME.

I think we may fairly infer from these examinations that enlarged tonsils and adenoid growths are the only anatomical abnormalities that could be classed as belonging to very early life. The other abnormal conditions are acquired, usually after the age of six years, increasing rapidly with each succeeding year until puberty. All social classes are liable to them at about equal proportions, and at the same age. Males suffer more frequently than females, probably owing to greater exposure to the causes which produce catarrhal congestion and inflammation. In glandular organs it is but a step from congestion to hyperplasia, and an increased afflux of blood being once established, a slight irritation will serve to keep it up, and hypertrophy is the necessary result.

The increased number after six years seems to be due to several causes :

First. More children suffer after that age from scarlet fever, measles, diphtheria, whooping-cough, and a few other diseases of childhood which are specially liable to produce inflammatory conditions of the throat and nose.

Second. After this age children are more exposed to falls, blows, and accidents of various kinds. They are given more liberty to run about and take care of themselves, and mingle with other children. It is well known that the nose is a favorite place for the receipt of blows, great and small, which are incident to the pains and pleasures of every-day life of most children.

Third. Climate certainly has an important influence on the mucous membranes. Persons coming from abroad to New York and other parts of America, soon complain of catarrhal symptoms of the throat and nose, which had been unknown to them before. On examination, the mucous membrane of the nares and throat is found congested and hypertrophied to a far greater extent than is observed in adults and children in England and on the continent.

Fourth. Hypertrophied tonsils and all forms of nasal obstruction produce catarrh by their interference with the respiration and circulation. It is also probable that they are the cause of the hypertrophied condition of mucous membrane in in many cases of the children examined.

It would seem that persons having the oversight of children should have them examined between the age of six and fourteen years, to ascertain the condition of the throat and nose. It is not the throat and nose alone which suffer from these abnormal conditions, but many other ailments, especially of the pulmonary, digestive, and nervous systems, can be traced to prolonged nasal obstruction and irritation.

